

# Integrating The Monorail

# NATURAL ENVIRONMENT

## DEIS Comments

City of Seattle Comments on the  
Seattle Monorail Green Line  
Draft Environmental Impact  
Statement

October 2003



## OVERVIEW

The City's DEIS comments related to Air Quality, Energy, Environmental Health, Earth, Water and Plants & Animals are assembled in this comment section to emphasize the relationships between these different impacts on the natural environment. (Most comments related to Parks & Recreation that inform impacts on the natural environment are included in the West Seattle and Uptown/Seattle Center/Belltown sections of the City's comment letter.)

## AIR QUALITY

### Methodology & Analysis

Maintenance and service vehicles used by SMP for the Green Line are not discussed in terms of number of types of vehicles, source of propulsion; this should be added to the discussion (4-224 – Air Quality Section).

### Impacts & Mitigation

Traffic patterns and pedestrian accesses will be modified due to the project implementation, placing additional environmental hazards, especially air pollution, into additional neighborhoods previously less active, the Air Quality section does not discuss this potential impact.

## ENERGY

The DEIS states that "Seattle City Light has indicated that the estimated power demand for the Green Line would not cause adverse impacts to the local power supply" and "Power demand for Green Line operation would not significantly affect City Light's regional capacity, although upgrades to some transmission lines and power substations may be required" (4-279, 4-296). Slightly different wording is suggested in both sections regarding power supply to convey that the project would not have a major impact on energy resources available to SCL, however upgrading some transmission lines and power substations may be required to deliver electrical power

to where it is needed. So we suggest removing the phrases "local power supply" and "regional capacity" and replacing them with: sources of electrical energy available to SCL.

The DEIS states that "It is anticipated that the train propulsion system substations will be supplied by common feeders from one or two City Light sources. The number of sources needed will depend on Seattle City Light's infrastructure at the time the power is needed for the Green Line." "Each passenger station and the Operations Center will be powered by separate electrical service connections." (4-280) Does SMP request power for each passenger station (19) the Operations Center individually; or is the SMP planning to serve them from the traction power substations (10 to 20)? Please note SCL has not yet agreed to a service design or supply points. Further work is needed to determine the best service plan to avoid wasted capacity on dedicated feeders.

## ENVIRONMENTAL HEALTH

### Methodology & Analysis

The DEIS states that "There is no conclusive evidence showing a link between EMF and the type and level associated with monorail and other types of transit and adverse human health effects" (4-367). The FEIS should provide supporting analysis or references, as the reference in the DEIS did not support the conclusion as it pertains to pacemakers and implanted medical devices. As noted in Appendix S, some health guidelines contain fairly restrictive limits on electric and magnetic field exposure for persons with pacemakers.

### Impacts & Mitigation

The Environmental Health section fails to acknowledge that discoveries may also lead to rerouting of essential utilities to nearby locations where environmental conditions

may again be uncertain or discovered to require additional effort to rectify.

To avoid significant adverse impacts, the FEIS should commit to standard operating procedures, health and safety plans and the like that are discussed in Sections 4.12.5.1 and .2 (4-366/7).

While Appendix S leaves open the possibility of adverse health effect from EMF's, and contains mitigation, Section 4.12.7 does not include a statement on mitigation. The statement in this section that "Once a system is chosen, electric and magnetic field intensities will be confirmed and compliance with applicable standards will be ensured" is not worded as mitigation for potential impacts, nor are the "standards" mandatory. Unless further analysis can justify a conclusion there are no potential impacts on health, the City recommend that mitigation be stated in this section as follows: "The DBOM contract will include engineering assessment during design to ensure compliance with ACGIH and ICNIRP guidelines for exposure to electric and magnetic fields, and testing and monitoring to demonstrate compliance prior to and during operation."

## **EARTH**

### **Impacts & Mitigation**

In section 4.13.3, a subsection should be included for prevention of accumulation of explosive levels of methane gas in enclosed spaces (4-385).

In section 4.13.3, the DEIS does not provide substantive discussion of earthquake processes and their impact on the Green Line (4-386).

The DEIS also does not address mitigation to prevent damage, especially catastrophic failure, of facilities of the Green Line, resulting from possible high level of seismic shaking. The high bridges would be particularly at risk from seismic shaking, as would linear elevated structures supported by periodic supports. The FEIS should

include discussion of levels of earthquake magnitude for design threshold criteria, and include relationship between these earthquake levels as they relate to the design of the facilities of the Green Line. It should also discuss any mitigation to prevent damage to monorail facilities as a result of seismic shaking.

The FEIS should acknowledge that the project must meet current seismic design criteria. Concerning landslides, local building and grading code regulations require that projects not increase the potential for earth movement, and that the risk of damage to the development from instability be minimal. Therefore, this project is required to be designed such operation of the Green Line will not adversely impact earth as it relates to landslides.

## **WATER**

### **Methodology & Analysis**

The DEIS often states that the Green Line will have beneficial impacts to water quality but does not back it up with modeling data specific to the pollutant(s) in question. The DEIS also often states that the Green Line will not have significant impacts to the potential for CSO overflows but does not back it up with any modeling data; the FEIS should provide more information.

In section 4.14.3.2, reference is made to the inclusion of typical pollutant concentrations of roadway runoff to link the change in PGIS to estimated quantities of pollutants that could be expected. The DEIS does not demonstrate what those estimated quantities were the FEIS should provide more information.

The Green Line will produce tire and brake wear and possibly hydraulic fluids, industrial activities at the operations center and increased traffic near the stations, not just stormwater runoff (4-391). The DEIS does not support the statement that the Green Line may have a beneficial impact on water quality.

During permitting, a Comprehensive Drainage Review, per City's Director's Rule, will be required with additional information which is required for large projects, defined as projects that include 1 acre of land disturbing activities or the cumulative addition of 5,000 square feet or more of new and replaced impervious surface (4-390 & 4-391). The City must review and approve the design assumptions used to calculate the required storm water detention volume. These include the area of pervious and impervious surfaces, time of concentration, coefficient of run-off, and orifice' size. If it is not practical to include this information on the plan then a separate drainage control report should be provided.

The DEIS assumes that increased stormwater quantity is not detrimental to designated receiving water bodies (4-391). Water quantity can affect in-stream turbidity and erosion. An analysis of the impacts of the increase in volume to designated receiving water bodies is required and mitigation of these impacts will be required.

Water quality and quantity impacts of the project should not only be measured by the increase of impervious surface (4-391). Changes in operation or use and change in grade of the site also affects water quantity/quality.

Table 4.14-8 shows that all station alternatives will reduce pollution generating impervious surfaces (4-409). However, it is unclear if the analysis included the increased likelihood of a future overall increase of PGIS associated with future on-street support facilities (e.g., bus layover facilities) for the stations.

The guideways and trains will contribute pollution (copper, tin, zinc iron, chromium, hydrocarbons and grease) directly and indirectly to the Duwamish River, Elliot Bay, the Lake Washington Ship Canal, Lake Washington and Lake Union. These heavy metals and petroleum bases substances are toxic to the aquatic environment. The assumption that the quantities of these pollutants that will be added to the

ecosystem are less than what Metro buses contribute is not the correct way to analyze the impact (4-411, 4-414, 4-419). The FEIS should acknowledge that the operation of the monorail will generate pollution and add to the stormwater system and to Duwamish River and the Lake Washington Ship Canal from the bridge crossings, and the FEIS should suggest possible mitigation options to eliminate these toxins from entering the aquatic environment.

### Impacts & Mitigation

The City of Seattle has local jurisdiction over the project; therefore, the City's Stormwater Management regulations Chapter 22.800 Stormwater, Grading and Drainage Control Code and Director's Rules that accompany this code should be evaluated and described in as much detail as the Federal and State regulations. (Specific references related to the application of the City requirements are provided in the Miscellaneous section of the City's comment letter.) The Green Line will be considered one project and meet the definition of a large projects.

The City's SEPA policies suggest that flow mitigation for designated receiving water bodies will be required to mitigate impacts caused by an increase in velocity.

Any continuous discharge is limited to the specified flow rates and on-site detention and flow control devices provided to regulate peak runoffs from new impervious area per Stormwater Grading and Drainage Code. No discharge shall be permitted during heavy rainfall.

Impacts should be identified more definitively, and mitigation should be identified affirmatively (particularly when it will be necessary to meet City code requirements). Detailed references are provided in the Miscellaneous section of this comment letter.

A sample monitoring plan should be included in the FEIS.

**PLANTS & ANIMALS****Methodology & Analysis**

Street trees should be analyzed in this section because they are plants and they provide habitat for birds (4-440, 4-454).

The DEIS should provide analysis of the affects of lighting on birds and wildlife (4-454).

No information is provided on the size of the structures that are proposed for the Ship Canal; therefore, no analysis can be made on the increase in the amount of predation that may occur because of these structures.

**Ship Canal Crossing**

The DEIS states that "The structures (across the Ship Canal) will provide more habitat for bass; therefore this may increase the bass population if this habitat is limiting." Without knowing what the limiting factors are for bass in this system, this sentence may not be accurate. The FEIS should provide additional information (4-455).

**Impacts & Mitigation**

Impacts should be identified more definitively, and mitigation should be identified affirmatively (particularly when it will be necessary to meet City code requirements). Detailed references are provided in the Miscellaneous section of this comment letter.

The DEIS mentions that in-water impacts could be avoided by "spanning the Ship Canal" (4-457). Is this option analyzed in any detail in the DEIS? If not, the FEIS should either analyze the option, identify it as a mitigation measure, or remove the statement about avoiding impacts.